No. 8200114

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Seed Research-Division of
Agrigenetics Corporation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IT IS UNLAWFUL TO SELL IN UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT

'5409'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 23rd day of September in the year of our Lord one thousand nine hundred and eighty-two

Attest:

Kenneth W. [illegible]

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0005

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1. NAME OF APPLICANT(S)
Seed Research Division of Agrigenetics Corp.

2. TEMPORARY DESIGNATION

3. VARIETY NAME
5409

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
Route 2, Box 48 Scott City, Ks. 67871

5. PHONE *(Include area code)*
316-872-2807

FOR OFFICIAL USE ONLY

PVPO NUMBER
8200114

6. GENUS AND SPECIES NAME
Triticum aestivum

7. FAMILY NAME *(Botanical)*
Graminaceae

FILING
DATE 4/30/82
TIME 12:30 ☐ A.M. ☒ P.M.

8. KIND NAME
Hard red winter wheat

9. DATE OF DETERMINATION
July, 1978

FEES RECEIVED
AMOUNT FOR FILING $ 500.00
DATE 4/30/82
AMOUNT FOR CERTIFICATE $ 250.00
DATE 7/23/82

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Division of Agrigenetics Corp.

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
New Mexico D 6/1/82

12. DATE OF INCORPORATION
May 1, 1975 D 6/1/82

13. NAME AND ADDRESS OF APPLICANT REPRESENATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Kenneth L. Goertzen
Route 2, Box 48
Scott City, Ks. 67871

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*

b. ☒ Exhibit B, Novelty Statement

c. ☒ Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*

d. ☒ Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
☒ Yes *(If "Yes," answer items 16 and 17 below)* ☐ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ Yes ☐ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☒ Foundation ☒ Registered ☒ Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No D 5/24/82

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No D 5/24/82

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
Kenneth L Goertzen
DATE 4/26/82

SIGNATURE OF APPLICANT
DATE

14 a. ORIGIN AND BREEDING HISTORY OF 5409

SR 2380 (spring habit, semi dwarf, high protein line) was crossed with SR 2390 (winter habit, short semi dwarf, high protein line with brown chaff). No commonly grown bread wheats are involved in the parentage.

Breeding method was pedigree and this resulted from a single plant selection in the F 10 generation.

This single plant selection was increased to the breeders seed level. Seed classes to be produced beyond breeders seed are foundation, registered, and certified.

No particular requirement are necessary to maintain the purity of 5409 besides using a clean drill for seeding, roguing out any variants, and a clean combine for harvesting.

5409 is stable for such practical agronomic characteristies as heading, maturity, height and seed color. It is less variable than Scout when grown under the same conditions. We consider this variety uniform and stable.

Foundation, registered, and certified seed are to be grown according to Kansas Crop Improvement requirements.

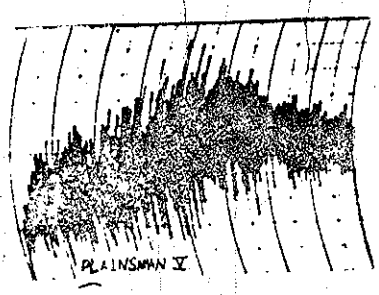
Roguing is used to remove variants. Straw chaff variants should not exceed 1/1,000 plants.

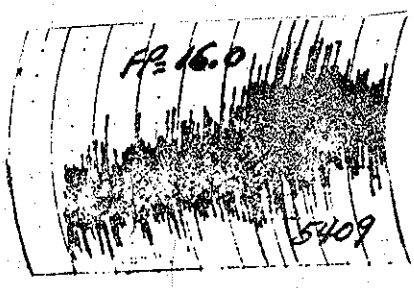
14 b.

D 5/24/82

MOST SIMILAR VARIETY TO 5409 IS PLAINSMAN V

PLAINSMAN V	5409
Gluten strength less than 5409	Greater gluten strength than Pl. V
Elliptical seed	Ovate seed
Glumes keeled but longer in length 4 mm wide 11 mm long	Glumes strongly keeled and shorter in length 3.5mm wide 9.5mm long
Beak shorter 3 mm	Beak longer 4 mm
Awns shorter in length on 2nd & 3rd spikelet 4.8 cm	Awns longer in length on 2nd and 3rd spikelet 7.2 cm





Trials under same conditions and year yielded contrasting measurements dicated by applicant 6/15/82.

5409

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Wheat)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM SPP.*)

INSTRUCTIONS: *See Reverse.*

NAME OF APPLICANT(S)
Seed Research, Div. of Agrigenetics Corp.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
Route 2, Box 48
Scott City, Ks. 67871

FOR OFFICIAL USE ONLY
PVPO NUMBER
8200114
VARIETY NAME OR TEMPORARY DESIGNATION
5409

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. KIND:
[1] 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:
[2] 1 = SPRING 2 = WINTER 3 = OTHER *(Specify)* _____
[2] 1 = SOFT 2 = HARD 3 = OTHER *(Specify)* _____
[2] 1 = WHITE 2 = RED 3 = OTHER *(Specify)* _____

3. SEASON - NUMBER OF DAYS FROM EMERGENCE TO:
[ ][ ][ ] FIRST FLOWERING
[ ][ ][ ] LAST FLOWERING

4. MATURITY *(50% Flowering)*:
[ ][ ] NO. OF DAYS *EARLIER* THAN [ ] 1 = ARTHUR 2 = SCOUT 3 = CHRIS
[ ][ ] NO. OF DAYS *LATER* THAN [ ] 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT *(From soil level to top of head)*:
[ ][7][1] CM. HIGH
[ ][ ] CM. TALLER THAN [ ]
[2][5] CM. SHORTER THAN [2] 1 = ARTHUR 2 = SCOUT 3 = CHRIS 4 = LEMHI 5 = NUGAINES 6 = LEEDS

6. PLANT COLOR AT BOOTING *(See reverse)*:
[1] 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHER COLOR:
[1] 1 = YELLOW 2 = PURPLE

8. STEM:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[ ] Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT
[0][4] NO. OF NODES *(Originating from node above ground)*
[1] Waxy bloom: 1 = ABSENT 2 = PRESENT
[1] Internodes: 1 = HOLLOW 2 = SOLID
[2][7] CM. INTERNODE LENGTH BETWEEN FLAG LEAF AND LEAF BELOW

9. AURICLES:
[1] Anthocyanin: 1 = ABSENT 2 = PRESENT
[1] Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:
[1] Flag leaf at booting stage: 1 = ERECT 2 = RECURVED 3 = OTHER *(Specify)*: _____
[ ] Hairs of first leaf sheath: 1 = ABSENT 2 = PRESENT
[ ][ ] MM. LEAF WIDTH *(First leaf below flag leaf)*
[2] Flag leaf: 1 = NOT TWISTED 2 = TWISTED
[2] Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT
[ ][ ] CM. LEAF LENGTH *(First leaf below flag leaf)*:

11. HEAD:

[1] Density: 1 = LAX 2 = DENSE

[4] Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER *(Specify)* fusiform

[4] Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

[5] Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED 5 = BROWN 6 = BLACK 7 = OTHER *(Specify)*: _____

[10] CM. LENGTH [10] MM. WIDTH

12. GLUMES AT MATURITY:

[3] Length: 1 = SHORT *(CA. 7 mm.)* 2 = MEDIUM *(CA. 8 mm.)* 3 = LONG *(CA. 9 mm.)*

[2] Width: 1 = NARROW *(CA. 3 mm.)* 2 = MEDIUM *(CA. 3.5 mm.)* 3 = WIDE *(CA. 4 mm.)*

[2] Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE

[3] Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

[1] 1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

[1] 1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

[1] 1 = PROSTRATE 2 = SEMI-ERECT 3 = ERECT

16. SEED:

[1] Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

[2] Cheek: 1 = ROUNDED 2 = ANGULAR slightly

[3] Brush: 1 = SHORT 2 = MEDIUM 3 = LONG

[1] Brush: 1 = NOT COLLARED 2 = COLLARED

[ ] Phenol reaction *(See instructions)*: 1 = IVORY 2 = FAWN 3 = LT. BROWN 4 = BROWN 5 = BLACK

[3] Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER *(Specify)* _____

[ ][6] MM. LENGTH [ ][3] MM. WIDTH [ ][ ] GM. PER 1000 SEEDS

17. SEED CREASE:

[1] Width: 1 = 60% OR LESS OF KERNEL 'WINOKA' 2 = 80% OR LESS OF KERNEL 'CHRIS' 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

[1] Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT' 2 = 35% OR LESS OF KERNEL 'CHRIS' 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[2] STEM RUST *(Races)* _____ [2] LEAF RUST *(Races)* _____ [ ] STRIPE RUST *(Races)* _____ [ ] LOOSE SMUT

[2] POWDERY MILDEW 5/24/82 [ ] BUNT [ ] OTHER *(Specify)* _____

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

[ ] SAWFLY [ ] APHID *(Bydv.)* [ ] GREEN BUG [ ] CEREAL LEAF BEETLE

[ ] OTHER *(Specify)* _____ HESSIAN FLY RACES: [ ] GP [ ] A [ ] B [ ] C [ ] D [ ] E [ ] F [ ] G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering		Seed size	
Leaf size		Seed shape	
Leaf color		Coleoptile elongation	
Leaf carriage		Seedling pigmentation	

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

(a) L.W. Briggle and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.

(b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. *(See attachment.)*

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

14 d. BOTANICAL DESCRIPTION OF 5409

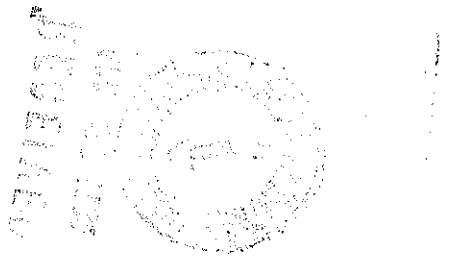
The seed is hard red with genetically high protein. The seed is ovate with a long brush. The crease is narrow, shallow, with ~~slightly angular~~ rounded 6/1/82 cheeks. The germ is ~~large~~ medium 6/1/82 D.

5409 has a white coleoptile. It has flag leaf held upright with a 45 degree clockwise twist. The growth prior to heading is yellow green in color ~~with waxy bloom.~~ 5/24/82 D The auricles are white with no hairs on auricle.

The spike is awned, fusiform, lax with brown chaff. The position of spike at maturity is erect.

Glumes are strongly keeled, brown, hard and leathery. The outer glume is 3.6 m.m. wide and 10 m.m. long. Shoulder narrow, oblique, and beak acuminate. Beak from 3 m.m. to 7 m.m.

Awns are brown. Awns on 2nd and 3rd spikelet 7.5 c.m. long.



SC 1981 REPLICATED YIELD SCOTT CITY

Freeze damage reduced yields in relation to blossoming date.

	Bu/A.	Season	Ht. cm.	Leaf rust 1-5	Stem rust 1-5
PLV	44.0	VERY EARLY	74	5	5
5409	40.9	VERY EARLY	71	5	5
SCOUT 66	42.9	EARLY MIDSEASON	96	3.5	5
NEWTON	42.1	EARLY MIDSEASON	88	5	5

- -

MOODY, TEXAS REPLICATED YIELD TRIAL
1981

	BLOOM DATE	STEM RUST	LEAF RUST	MILDEW RES.	HT cm.	AVE.YIELD BU./A.
5409	4/9	5	5	5	77	43.9
TAM 105 CHECK	4/16	5	5	5	88	38.10
BEAU CHECK	4/11	5	5	5	84	55.
HART CHECK	4/12	4	4	5	92	50.32

- -

In 1981 laboratory cold tolerance tests at Saskatoon, Canada Plainsman V had 50% or more dead at -19 F. 5409 survived -19 F. D 6/24/82

- -

Leaf rust, stem rust, and mildew were 1-5 ratings with 5 best

TEST # 1 SC 1980 SCOTT CITY REPLICATED YIELD
WITH SCOUT 66 CHECK

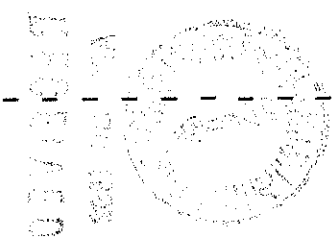
		(1-5) LEAF RUST RATING	(1-5) STEM RUST RATING
PL V	113.4 BU/A.	5	5
5409	98.9 BU/A.	5	5
SCOUT 66	83.5 BU/A.	3.5	5

TEST # 2 SCOTT CITY 1980 REPLICATED YIELD
WITH SCOUT 66 & NEWTON CHECKS

	BU/A.	LEAF RUST RATING	STEM RUST RATING
5409	104.28	5	5
SCOUT 66	83.99	4	5
NEWTON	100.59	5	5

SC 79 EXPERIMENTAL TEST PLOT WITH SCOUT CHECK

	AVE. BU/A.	YIELD AS % OF SCOUT 66	LBS. PROTEIN/A.	LEAF RUST (1-5)	STEM RUST (1-5)
5409	71.3	110	939.9	5	5
SCOUT 66	64.8	100	638.8	4	5



SC 78 HIGH PROTEIN EXPERIMENTALS
WITH SCOUT 66 CHECK (4 REPLICATIONS)

	YIELD % OF SCOUT 66 CHECK	% PROTEIN	(1-5) LEAF RUST RATING	(1-5) STEM RUST RATING
5409	116.8	17.75	5	5
SCOUT 66	100.0	14.07	4	5
PL V	129.8	16.3	5	5